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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,659	03/15/2004	Shin Yasuda	119088	8600

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EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/799,659	YASUDA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2006 and 14 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-9 and 12-24 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 12-14, and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **May 10, 2006** has been entered.
2. This Office Action is also in response to applicant's amendments filed on **May 10 and July 14, 2006**, which have been entered into the file.
3. By these amendments, the applicant has amended claims 4, 6, 12, and 21-22.
4. **Claims 15-20 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 26, 2005.
5. Claims 1, 4-9, 12-14 and 21-24 remain pending in this application.

### *Claim Rejections - 35 USC § 112*

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. **Claim 6 is rejected under 35 U.S.C. 112, second paragraph**, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the recording of the hologram using object beam in a first polarization state and using the reference beam of a second polarization state, in order for the reconstructed beam diffracted from the hologram with a first polarization state when a reconstructed beam of the second polarization is used.

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The re-recording of the hologram needed to be done by having the object beam and reference beams at different polarization states in order for the reconstructed beam having polarization state being different.

**Claim 6 is also very confusing** since it is not clear the phrase “the hologram” referred in different parts of the claim is the same or different hologram. The applicant is respectfully noted that the re-recorded hologram is a hologram different from the original hologram. It is impossible to determine the scopes of the claim.

### *Claim Objections*

**8. Claims 1, 4-9, 13-14 and 21-24 are objected to because of the following informalities:**

(1). The phrase “sub-subsequently re-recording and retaining the reproduced information in the optical recording medium” recited in claims 21 and 22 is confusing and indefinite since it is not clear how could the information be re-recorded and retained? Are they re-recorded as a copy hologram or not? The claims fail to indicate the type of re-recording step involved here that makes the scopes of the claims unclear. It is also not clear if the “reconstructed beam” is used as the re-recoding process or not? It is not clear how can the reproduced information be re-recorded in the optical recording medium.

(2). The phrase “re-recording ... as a hologram” recited in claims 1, 4-5, 9 and 23-24 is confusing and indefinite since it is not clear what is the relationship between the re-recorded hologram and the hologram recited in their respective based claim.

(3). The phrase “the subsequent re-recording and retaining includes position information representing a position” recited in *claims 4 and 12* is confusing since it is not clear if the position is the same or different from the predetermined position recited in the based claim.

(4). Claim 6 is confusing and indefinite since it is not clear what is the “the hologram” recited in earlier part of the claim and what is the “hologram following the re-recording”.

**Appropriate correction is required.**

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 21, 22 and 1, 4-7, 9, 12, 14 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Suganuma (PN. 6,377,367).**

**Suganuma** teaches a *method of recording and reproducing hologram* for suppressing the reduction of diffraction efficiency of hologram when reproduced from the recording medium thereby prolonging the lifetime of the hologram, (please see column 3, lines 30-38). **Suganuma** teaches that the method includes the step of providing the hologram recording medium, on which a hologram, (i.e. an original hologram) has been recorded by interference between an object beam and a reference beam, (please see column 3, lines 39-44), the step of illuminating the original hologram with *reading* beams to *reproduce* the recorded information in the original hologram, the step of receiving the reconstructed beam diffracted by the original hologram and the step of *re-recording* the reproduced information as a *new hologram* that is *identical* to the original hologram which therefore retaining the hologram, (please see column 3, line 45 to column 4, line 12).

**Suganuma** teaches that the method of re-recording the original hologram is to suppress the reduction of the diffraction efficiency of the hologram when reproduced from the recording medium. One skilled in the art would understand that the measure of the diffraction efficiency of the hologram is the measure of the **intensity level** of the *reproduced* or *reconstructed* beam diffracted from the hologram. Although this reference does not teach *explicitly* about the step of determining whether the intensity of the reconstructed beam has decreased to a predetermine value or not, however **Suganuma** does teach *explicitly* that the purpose of re-recording the original hologram in the optical recording medium is to

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ensure the diffraction efficiency or the intensity of the reproduced beam is **maintained** at a value large enough to prolong the hologram, (please see column 2, lines 15-25), this suggests some kind of comparison or measurement of the diffraction efficiency (i.e. the intensity level) is included to determine if the diffraction efficiency is maintained at the value. Suganuma further teaches explicit, in different instance, to compare the diffraction efficiency to a *threshold* value in order to determine if the re-recording is necessary, (*please see column 2, line 50 to column 3, line 6*). It would then have been obvious to one skilled in the art to use the method of comparing the diffraction efficiency or intensity level of the reproduced holographic beam with the threshold level to determine if the subsequent re-recording step is needed for the benefit of providing a definite step to determine if the re-recording is necessary or not.

With regard to claim 22, although this reference does not teach explicitly that the number of reproduction of the hologram is used as the threshold means for determining if the subsequent re-recording is needed or not, however as taught explicitly by Suganuma when the hologram is *repeatedly reproduced*, (i.e. a number of times of reproduction), the diffraction efficiency *decreases*, (please see column 1, lines 55-64). This means implicitly that the threshold value of the diffraction efficiency has a corresponding *threshold number of times* for reproducing the hologram, before the diffraction efficiency decreases to an undesired level. It would then have been obvious to one skilled in the art to use the number of reproduction of the hologram as an alternative threshold value for determining if the subsequent re-recoding is necessary or not for the benefit of using more simple method to determine it.

With regard to claims 1, 5, 9, and 23-24, Suganuma teaches that the re-recording of the reproduced information from the original hologram is recorded in the optical recording medium as an *identical hologram* to the original hologram. Although this reference does not teach explicitly if the re-recorded new hologram is recorded at the *exactly same* locations or *not* as the original hologram, such modifications would have been obvious to one skilled in the art for they are merely obvious matters of

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design choices to one skilled in the art to suit for different application requirements. The re-recorded new hologram certainly has a diffraction efficiency or reproduced beam intensity that is detectable.

With regard to claims 4 and 12, this reference does not teach explicitly if the position information is part of the recorded information. However such modification is considered to be obvious matters of design choices to one skilled in the art to apply the recording technique to record the type of information as desired.

With regard to claim 6, the scopes of the claims are not really clear it really cannot be examined here.

With regard to claims 7 and 13, Suganuma teaches that the holographic recording medium is of photorefractive material, (please see column 1, lines 58-59).

**11. Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over patent issued to Suganuma as applied to claim 21 above, and further in view of the patent issued to Kawano et al (PN. 6,452,890).**

The method for holographic recording and reproducing taught by **Suganuma** as described for claim 21 above has met all the limitations of the claims. This reference however does not teach explicitly that the recording medium may also comprise the particular polyester claimed. **Kawano et al** in the same field of endeavor teaches that the holographic recording medium may comprise polarization sensitive material such as polyester with azobenzene side chain, (please see column 10, lines 32-35). It would then have been obvious to one skilled in the art to apply the teachings of **Kawano et al** to modify the holographic recording layer material of Suganuma to use the particular polyester material for the benefit of making the holographic recording medium sensitive to the polarization state of the recording and reproducing beams so that *polarization induced* holographic data can be recorded, which gives the advantage of increasing the types of holographic data can be recorded by the system.

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Furthermore, it has been held it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

***Response to Arguments***

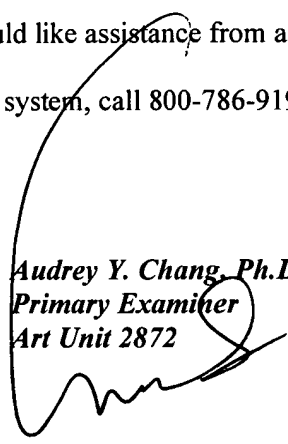
12. Applicant's arguments with respect to claims 21-24, 1, 4-9 and 12-14 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***Audrey Y. Chang, Ph.D.  
Primary Examiner  
Art Unit 2872***



A. Chang, Ph.D.